

**SHOBHIT NIRWAN's**  
**DESIGNED**



# **RESOURCES AND DEVELOPMENT**

**NEW NOTES FOR CLASS 10 2022 EXAMS**

**Including NCERT Line-By-Line Questions  
PYQs in MCQ Format  
CBSE Sample Paper  
Flowchart**

On the basis  
of Origin

- Biotic
- Abiotic

On the basis  
of Exhaustibility

- Renewable
- Non-Renewable

On the basis of status  
of Development

- Developed
- Potential
- stock
- Reserve

On the basis of  
Ownership

- Individual
- Community
- National
- International

## Classification of Resources

# Resources and Development

## Development of Resources

- Sustainable development
- Agenda 21
- Resource Planning in India
- Process of Resource Planning

## Land Resources

- Land utilisation
- Land use pattern in India
- Land Degradation

Causes

Solutions

## Soil as Resource

— Soil erosion and soil conservation

## — Classification/Types of Soil

Alluvial soil      Black soil (Regur soil)      Red and yellow soil      Laterite soil      Arid soil      Forest soil

Everything available in our environment which can be used to satisfy our needs, provided, it is technologically accessible, economically feasible and culturally acceptable can be termed as Resources.

## Classification of Resources

### # On the basis of Origin: [cbse 2018]

- Biotic: Resources which are obtained from biospheres and have life such as human beings, flora and fauna, fisheries etc
- Abiotic: Resources which are composed of non-living things such as rocks, minerals etc.

### # On the basis of Exhaustibility:

- Renewable: Resources which can be renewed or reproduced by physical, mechanical and chemical process. such as solar and wind energy, forest, water etc
- Non-Renewable: Resources which take millions of years in their formation. They may exhaust by excessive use such as petrol, coal, fossil fuels etc.

### # On the basis of the Status of Development:

- Developed: Resources which are surveyed and their quantity and quality is determined for utilization. eg: Coal mines.
- Potential: Resources which are found but yet not utilized. eg: Sun and wind energy in deserts.
- Stock: These have potential to satisfy human needs but humans don't have technology to access these. eg: Extracting  $H_2$  and  $O_2$  from  $H_2O$ .
- Reserve: These resources can be utilised with help of existing technology but are kept for future requirements. eg: Water can be used to generate more hydroelectricity.

### # On the basis of Ownership:

- Individual: Resources owned privately by individuals. eg: plot, house, car, wells etc.
- Community: Resources which are accessible to all the members of the community eg: public parks, playgrounds, picnic spots etc.
- National: Technically, all resources available in the country are national resources eg: forests, wildlife, land division and political territories.  
or, Resources which are within the political boundary and oceanic area upto 12 nautical miles from the coast belong to the nation.

- **International**: Resources which are regulated by International institutions  
eg:- Oceanic resources beyond 200 nautical miles of the Exclusive zone belongs to open ocean and no individual country can utilize them without the concurrence of these International institutions.

## Development of Resources

Resources of different kinds are vital for human survival and also for maintaining the quality of life. Earlier the resources were taken as free gifts of nature and were used indiscriminately because of which some major problems arise:

- Depletion of resources for satisfying the greed of few individuals.
- Accumulation of resource in few hands have divided the society into two segments i.e. haves and have nots or rich or poor.
- Indiscriminate exploitation of resources has led to global ecological crisis such as global warming, ozone layer depletion, environmental pollution and land degradation.

Therefore, a fair distribution of resources therefore is essential for a sustained quality of life and global peace. This can be achieved through proper planning.

- # **Sustainable Development**: It means development should take place without damaging the environment and development in the present should not compromise with the needs of future generations.
- # **Agenda 21**: It is a declaration signed by the world leaders in 1992 at UNCED, which took place at Rio de Janeiro. It aims at achieving global sustainable development.
- # **Resource Planning in India**:
  - Resource Planning means identification and quantification of the available resources along with their development.
  - It is important in a country like India, which has an enormous diversity in availability of resources.
  - There are regions which are rich in certain types of resources but are deficient in other resources. This calls for balanced resources planning at national, state, regional and local levels.
  - Arunachal Pradesh has abundances of water but lacks in infrastructural development. Rajasthan is endowed with solar and wind energy but lacks in water resources. Cold deserts of Ladakh have rich heritage but lacks in water, infrastructural development and other vital minerals.



## # Process of Resource Planning:

This is a technique or skill of proper utilization of resources. Resource planning consists of three stages -

- Identification and inventory of resources - Involves surveying, mapping and measurement of characteristics and properties and properties of resources.
- Evolving a planning structure endowed with appropriate - Technology, skill and institutional set up for implementing resource development plans.
- Matching - The resources development plans with overall national development plans.

## Land Resources

India's geographical area comprises:

- Plains (43%) provide facilities for agriculture and industries.
- Mountains (30%) ensure perennial flow of rivers. It provides facilities for tourism and ecological aspects.
- Plateau (27%) possesses rich reserves of minerals, fossil fuels and forests.

## # Land Utilisation:

Land resources are used for the following purposes:

- Forest
- Land put to non-agricultural uses: eg buildings, roads, factories etc.
- Net sown area: Area sown more than once in an agricultural year plus net sown area is known as gross cropped area.
- Fallow lands: Land left without cultivation for one or more than one agricultural year.
- Other cultivated land: Permanent pastures and grazing land, Land under miscellaneous tree crops groves (not included in net sown area), Culturable waste land (left uncultivated for more than 5 agricultural years).

(K<sup>3</sup>B) ⇒ The land use pattern in India is determined by both physical factors such as topography, climate, soil types as well as human factors such as population density, technological capability, culture and traditions etc.

## Land Degradation

The decrease in the quality of land due to human and natural activities which makes it unfit for cultivation is known as land degradation.

## # Causes of Land degradation:

- Overgrazing in states like Gujarat, Rajasthan, MP etc.

- Over irrigation in states like Punjab, Haryana and UP due to water logging leading to increase in salinity and alkalinity in the soil.
- Mining sites are unused after excavation work is complete leaving deep scars and traces of over burdening.
- Mineral processing like grinding of limestone for cement industry and calcite & soapstone for ceramic industry generate huge amount of dust in atmosphere. It retards the process of infiltration of water into soil after it settles down on land.
- Industrial effluents as waste has become major source of land and water pollution.

### # Measures for land conservation / Solutions :

- Afforestation and proper management of grazing can help to some extent.
- Control on overgrazing.
- Control on mining activities.
- Planting of shelter belts
- Proper discharge and disposal of industrial effluents.

### Soil as a Resource

A most important renewable natural resource but takes millions of years to form soil upto a few centimeter in depth. Types of soil :

#### # Alluvial Soil :

- This soil type is most important and widely spread. The entire northern plains are made of alluvial soil. (eg:- parts of Gujarat, Rajasthan etc)
- On the basis of age, alluvial soil can be classified into :-
  - (a) Bangar: old alluvial, more concentration of kanker nodules and is less fertile.
  - (b) Khadar: New alluvial, less concentration of kanker nodules and is more fertile.
- Alluvial soil consists of potash, phosphoric and lime.
- Ideal for sugarcane, paddy, wheat and other cereal and pulse crops.

#### # Black Soil (Regur Soil):

- Black in colour and ideal for growing cotton. So also called black cotton soil.
- Covers the north-western Deccan Plateau, plateau of Maharashtra, Saurashtra, Malwa, Madhya Pradesh and Chhattisgarh.
- It is rich in soil nutrients such as calcium carbonate, magnesium, potash and lime.
- It is made up of extremely fine clayey material and is known for their capacity to hold moisture.

#### # Red and Yellow Soil :

- Develops on crystalline igneous rocks in areas of low rainfall.
- It covers southern and eastern part of Deccan plateau, parts of Chhattisgarh

and Odisha and piedmont zone of Western Ghats.

- Soil develops a red colour on diffusion with Iron in crystalline and meta-morphic rocks. Yellow in hydrated form.

### # Laterite Soil:

- In the areas of heavy rainfall and high temperature
- Humus content is low as bacteria die in high temperature.
- Suitable for cultivation with adequate doses of manures and fertilizers.
- Found in Karnataka, Kerala, Tamil Nadu, Madhya Pradesh and hilly areas of Odisha and Assam.
- After adopting appropriate soil conservation techniques in hilly areas of Karnataka, Kerala and Tamil Nadu this soil is very useful for growing Tea and Coffee. Red Laterite Soil in Tamil Nadu, Kerala and Andhra Pradesh is suitable for growing cashew nut.

### # Arid Soil:

- Ranges from red to brown in colour. Sandy in texture and saline in nature
- Due to dry climate and high temperature, soil lacks in humus and moisture content. After proper irrigation facilities, it is cultivable.
- Lies in the western part of Rajasthan.

### # Forest Soil:

- Found in hilly and mountainous areas where sufficient rain forests are available.
- The soil texture varies according to mountain environment where they are formed. They are loamy and silty in valley sides and coarse grained in the upper slopes.
- In the snow-covered areas, soil experience denudation and are acidic with low humus content. Soil found in the lower parts of the valleys on river terraces and alluvial fans are fertile.

### Soil Erosion: Causes and Solutions

The denudation of the soil cover and subsequent washing down is called Soil Erosion. Caused due to:

- Deforestation & Overgrazing
- Construction & Mining
- Water flows as a sheet over large areas down the slope. This causes washing away of top. This is called sheet erosion.
- Wind blows loose soil off flat or sloping land. This is called Wind erosion
- Land unfit for cultivation is called as Bad Land.

## Conservation / Solution:

- Steps can be cut out on the slopes making terraces. Terrace cultivation restricts erosion.
- Afforestation.
- Ploughing along the contour lines can decelerate the flow of water down the slopes. This is contour ploughing.
- Planting lines of trees to create shelter belts to break the force of wind. Rows of such trees is called shelter belts.
- Large fields are divided into strips. Strips of grass are left to grow between the crops. This breaks the force of wind; this method is known as strip cropping.



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Q1. The process of transformation of things available in our environment involves an interactive relationship between ?

Q2. How can resources be classified on basis of:

a. Origin

b. Exhaustibility

c. ownership

d. Status of development



## RESOURCES AND DEVELOPMENT

Can you identify and name the various items used in making life comfortable in our villages and towns. List the items and name the material used in their making.

Everything available in our environment which can be used to satisfy our needs, provided, it is technologically accessible, economically feasible and culturally acceptable can be termed as 'Resource'.

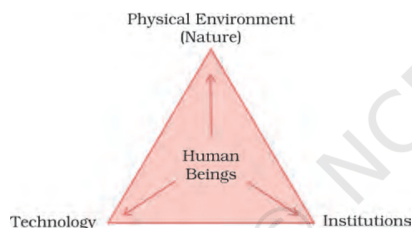


Fig. 1.1: Interdependent relationship between nature, technology and institutions

The process of transformation of things available in our environment involves an interactive relationship between nature, technology and institutions. Human beings interact with nature through technology and create institutions to accelerate their economic development.

Do you think that resources are free gifts of nature as is assumed by many? They are not. Resources are a function of human activities. Human beings themselves are essential components of resources. They transform material available in our environment into resources and use them. These resources can be classified in the following ways –

- (a) On the basis of origin – biotic and abiotic
- (b) On the basis of exhaustibility – renewable and non-renewable
- (c) On the basis of ownership – individual, community, national and international
- (d) On the basis of status of development – potential, developed stock and reserves.

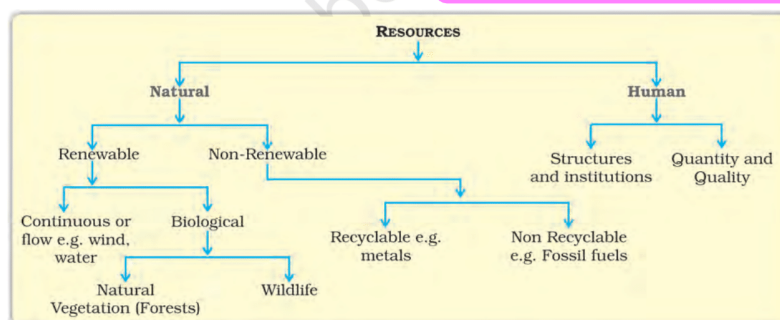


Fig. 1.2: Classification of resources

Q3. Upto how many kilometers from the coast oceanic area is termed as territorial water?

Q4. Beyond how many nautical miles, the open ocean starts?

Q5. Which states have enormous potential for development of wind and solar energy?

Identify at least two resources from each category.

#### TYPES OF RESOURCES

##### On the Basis of Origin

**Biotic Resources:** These are obtained from biosphere and have life such as human beings, flora and fauna, fisheries, livestock etc.

**Abiotic Resources:** All those things which are composed of non-living things are called abiotic resources. For example, rocks and metals.

##### On the Basis of Exhaustibility

**Renewable Resources:** The resources which can be renewed or reproduced by physical, chemical or mechanical processes are known as renewable or replenishable resources. For example, solar and wind energy, water, forests and wildlife, etc. The renewable resource may further be divided into continuous or flow (Fig.1.2).

**Non-Renewable Resources:** These occur over a very long geological time. Minerals and fossil fuels are examples of such resources. These resources take millions of years in their formation. Some of the resources like metals are recyclable and some like fossil fuels cannot be recycled and get exhausted with their use.

##### On the Basis of Ownership

**Individual Resources:** These are also owned privately by individuals. Many farmers own land which is allotted to them by government against the payment of revenue. In villages there are people with land ownership but there are many who are landless. Urban people own plots, houses and other property. Plantation, pasture lands, ponds, water in wells etc. are some of the examples of resources ownership by individuals. Make a list of resources owned by your household.

**Community Owned Resources:** There are resources which are accessible to all the members of the community. Village commons (grazing grounds, burial grounds, village

ponds, etc.) public parks, picnic spots, playgrounds in urban areas are de facto accessible to all the people living there.

**National Resources:** Technically, all the resources belong to the nation. The country has legal powers to acquire even private property for public good. You might have seen roads, canals, railways being constructed on fields owned by some individuals. Urban Development Authorities get empowered by the government to acquire land. All the minerals, water resources, forests, wildlife, land within the political boundaries and oceanic area up to 12 nautical miles (22.2 km) from the coast termed as territorial water and resources therein belong to the nation.

**International Resources:** There are international institutions which regulate some resources. The oceanic resources beyond 200 nautical miles of the Exclusive Economic Zone belong to open ocean and no individual country can utilise these without the concurrence of international institutions.

##### Do you know?

Do you know that India has got the right to mine manganese nodules from the bed of the Indian Ocean from that area which lies beyond the exclusive economic zone. Identify some other resources which are international in nature.

##### On the Basis of the Status of Development

**Potential Resources:** Resources which are found in a region, but have not been utilised. For example, the western parts of India particularly Rajasthan and Gujarat have enormous potential for the development of wind and solar energy, but so far these have not been developed properly.

**Developed Resources:** Resources which are surveyed and their quality and quantity have been determined for utilisation. The development of resources depends on technology and level of their feasibility.

**Stock:** Materials in the environment which have the potential to satisfy human needs but human beings do not have the appropriate technology to access these, are



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CONTEMPORARY INDIA - II

Q6. How has exploitation of resources affected the ecological crisis?  
Q7. When and where was the first Rio de Janeiro Earth Summit held?

included among stock. For example, water is a compound of two gases; hydrogen and oxygen. Hydrogen can be used as a rich source of energy. But we do not have advanced technical 'know-how' to use it for this purpose. Hence, it can be considered as stock.

**Reserves** are the subset of the stock, which can be put into use with the help of existing technical 'know-how' but their use has not been started. These can be used for meeting future requirements. River water can be used for generating hydroelectric power but presently, it is being utilised only to a limited extent. Thus, the water in the dams, forests etc. is a reserve which can be used in the future.

Prepare a list of stock and reserve, resources that you are familiar with from your local area.

#### DEVELOPMENT OF RESOURCES

Resources are vital for human survival as well as for maintaining the quality of life. It was believed that resources are free gifts of nature. As a result, human beings used them indiscriminately and this has led to the following major problems.

- Depletion of resources for satisfying the greed of a few individuals.
- Accumulation of resources in few hands, which, in turn, divided the society into two segments i.e. haves and have nots or rich and poor.

1. Imagine, if the oil supply gets exhausted one day, how would this affect our life style?
2. Plan a survey in your colony/village to investigate people's attitude towards recycling of the domestic/agricultural wastes. Ask questions about :
  - (a) What do they think about resources they use?
  - (b) What is their opinion about the wastes, and its utilisation?
  - (c) Collage your results.

- Indiscriminate exploitation of resources has led to global ecological crises such as, global warming, ozone layer depletion, environmental pollution and land degradation.

An equitable distribution of resources has become essential for a sustained quality of life and global peace. If the present trend of resource depletion by a few individuals and countries continues, the future of our planet is in danger.

Therefore, resource planning is essential for sustainable existence of all forms of life. Sustainable existence is a component of sustainable development.

#### Sustainable development

Sustainable economic development means 'development should take place without damaging the environment, and development in the present should not compromise with the needs of the future generations.'

#### Rio de Janeiro Earth Summit, 1992

In June 1992, more than 100 heads of states met in Rio de Janeiro in Brazil, for the first International Earth Summit. The Summit was convened for addressing urgent problems of environmental protection and socio-economic development at the global level. The assembled leaders signed the Declaration on Global Climatic Change and Biological Diversity. The Rio Convention endorsed the global Forest Principles and adopted Agenda 21 for achieving Sustainable Development in the 21<sup>st</sup> century.

#### Agenda 21

It is the declaration signed by world leaders in 1992 at the United Nations Conference on Environment and Development (UNCED), which took place at Rio de Janeiro, Brazil. It aims at achieving global sustainable development. It is an agenda to combat environmental damage, poverty, disease through global co-operation on common interests, mutual needs and shared responsibilities. One major objective of the Agenda 21 is that every local government should draw its own local Agenda 21.

RESOURCES AND DEVELOPMENT



Q8. Which states are rich in mineral and coal deposits?

Q9. Which state has an abundance of water resources?

Q10. Which area has a very rich cultural heritage but is deficient in water, infrastructure and some vital minerals.

#### RESOURCE PLANNING

Planning is the widely accepted strategy for judicious use of resources. It has importance in a country like India, which has enormous diversity in the availability of resources. There are regions which are rich in certain types of resources but are deficient in some other resources. There are some regions which can be considered self sufficient in terms of the availability of resources and there are some regions which have acute shortage of some vital resources. For example, the states of Jharkhand, Chhattisgarh and Madhya Pradesh are rich in minerals and coal deposits. Arunachal Pradesh has abundance of water resources but lacks in infrastructural development. The state of Rajasthan is very well endowed with solar and wind energy but lacks in water resources. The cold desert of Ladakh is relatively isolated from the rest of the country. It has very rich cultural heritage but it is deficient in water, infrastructure and some vital minerals. This calls for balanced resource planning at the national, state, regional and local levels.

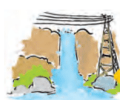
#### Activity

Prepare a list of resources found in your state and also identify the resources that are important but deficit in your state.

#### Resource Planning in India

Resource planning is a complex process which involves : (i) identification and inventory of resources across the regions of the country. This involves surveying, mapping and qualitative and quantitative estimation and measurement of the resources. (ii) Evolving a planning structure endowed with appropriate technology, skill and institutional set up for implementing resource development plans, (iii) Matching the resource development plans with overall national development plans.

India has made concerted efforts for achieving the goals of resource planning right from the First Five Year Plan launched after Independence.



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CONTEMPORARY INDIA – II

What resources are being developed in your surroundings by the community/village panchayats/ward level communities with the help of community participation?

The availability of resources is a necessary condition for the development of any region, but mere availability of resources in the absence of corresponding changes in technology and institutions may hinder development. There are many regions in our country that are rich in resources but these are included in economically backward regions. On the contrary there are some regions which have a poor resource base but they are economically developed.

*Can you name some resource rich but economically backward regions and some resource poor but economically developed regions? Give reasons for such a situation.*

The history of colonisation reveals that rich resources in colonies were the main attractions for the foreign invaders. It was primarily the higher level of technological development of the colonising countries that helped them to exploit resources of other regions and establish their supremacy over the colonies. Therefore, resources can contribute to development only when they are accompanied by appropriate technological development and institutional changes. India has experienced all this in different phases of colonisation. Therefore, in India, development, in general, and resource development in particular does not only involve the availability of resources, but also the technology, quality of human resources and the historical experiences of the people.

**Conservation of Resources:** Resources are vital for any developmental activity. But irrational consumption and over-utilisation of resources may lead to socio-economic and environmental problems. To overcome these problems, resource conservation at various levels is important. This had been the main concern of the leaders and thinkers in the past. For example, Gandhiji was very apt in



Q11. Assertion: Gandhi ji wanted to replace mass production with production by the masses.

Reason: Gandhi ji placed the greedy and selfish individuals and exploitative nature of modern technology as the root cause for resource depletion at the global level.

1. Assertion is true but reason is false
2. Assertion is false but reason is true
3. Both assertion and reason are false
4. Both assertion and reason are true

Q12. In which book Gandhi ji's philosophy was once again presented by Schumacher?

Q13. How much land in India is Plain?

Q14. How much land in India is covered with rivers?

Q15. How much land in India is the plateau region?

voicing his concern about resource conservation in these words: "There is enough for everybody's need and not for any body's greed." He placed the greedy and selfish individuals and exploitative nature of modern technology as the root cause for resource depletion at the global level. He was against mass production and wanted to replace it with the production by the masses.

At the international level, the Club of Rome advocated resource conservation for the first time in a more systematic way in 1968. Subsequently, in 1974, Gandhian philosophy was once again presented by Schumacher in his book *Small is Beautiful*. The seminal contribution with respect to resource conservation at the global level was made by the Brundtland Commission Report, 1987. This report introduced the concept of 'Sustainable Development' and advocated it as a means for resource conservation, which was subsequently published in a book entitled *Our Common Future*. Another significant contribution was made at the Earth Summit at Rio de Janeiro, Brazil in 1992.

#### LAND RESOURCES

We live on land, we perform our economic activities on land and we use it in different ways. Thus, land is a natural resource of utmost importance. It supports natural vegetation, wild life, human life, economic activities, transport and communication systems. However, land is an asset of a finite

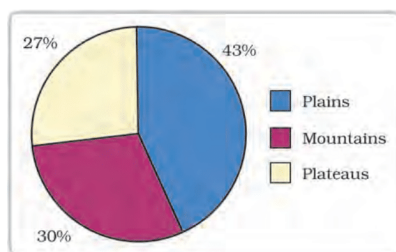


Fig 1.3: India : Land under important Relief Features

magnitude, therefore, it is important to use the available land for various purposes with careful planning.

India has land under a variety of relief features, namely; mountains, plateaus, plains and islands! About 43 per cent of the land area is plain, which provides facilities for agriculture and industry. Mountains account for 30 per cent of the total surface area of the country and ensure perennial flow of some rivers, provide facilities for tourism and ecological aspects. About 27 per cent of the area of the country is the plateau region. It possesses rich reserves of minerals, fossil fuels and forests.

#### LAND UTILISATION

Land resources are used for the following purposes:

1. Forests
2. Land not available for cultivation
  - (a) Barren and waste land
  - (b) Land put to non-agricultural uses, e.g. buildings, roads, factories, etc.
3. Other uncultivated land (excluding fallow land)
  - (a) Permanent pastures and grazing land,
  - (b) Land under miscellaneous tree crops groves (not included in net sown area),
  - (c) Culturable waste land (left uncultivated for more than 5 agricultural years).
4. Fallow lands
  - (a) Current fallow-(left without cultivation for one or less than one agricultural year),
  - (b) Other than current fallow-(left uncultivated for the past 1 to 5 agricultural years).
5. Net sown area

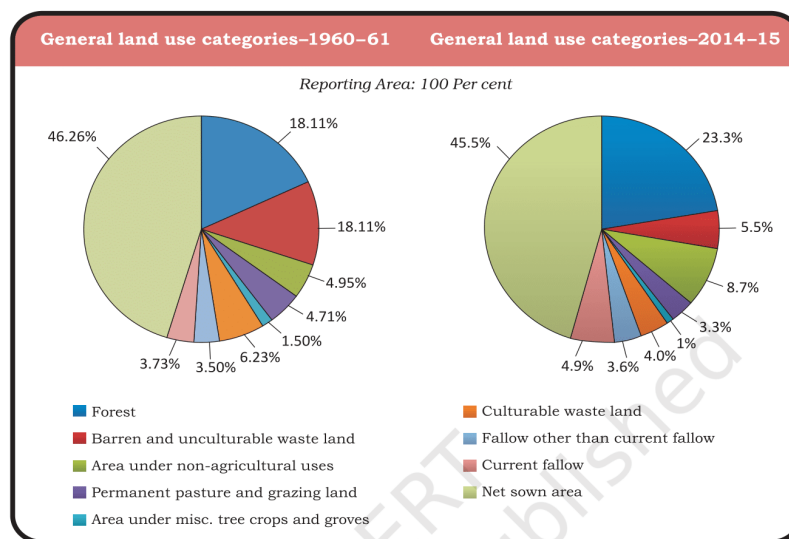
Area sown more than once in an agricultural year plus net sown area is known as *gross cropped area*.

#### LAND USE PATTERN IN INDIA

The use of land is determined both by physical factors such as topography, climate, soil types as well as human factors such as population density, technological capability and culture and traditions etc.



Q16. How much percentage of the total geographical area is available only for land use in India?



Source : Directorate of Economics and Statistics, Ministry of Agriculture, 2017

Fig. 1.4

Total geographical area of India is 3.28 million sq km. Land use data, however, is available only for 93 per cent of the total geographical area because the land use reporting for most of the north-east states except Assam has not been done fully. Moreover, some areas of Jammu and Kashmir occupied by Pakistan and China have also not been surveyed.

Try to do a comparison between the two pie charts (Fig. 1.4) given for land use and find out why the net sown area and the land under forests have changed from 1960-61 to 2014-15 very marginally.

The land under permanent pasture has also decreased. How are we able to feed our huge cattle population on this pasture land and what are the consequences of it? Most of the other than the current fallow lands are either of poor quality or the cost of cultivation

of such land is very high. Hence, these lands are cultivated once or twice in about two to three years and if these are included in the net sown area then the percentage of NSA in India comes to about 54 per cent of the total reporting area.

The pattern of net sown area varies greatly from one state to another. It is over 80 per cent of the total area in Punjab and Haryana and less than 10 per cent in Arunachal Pradesh, Mizoram, Manipur and Andaman Nicobar Islands.

Find out reasons for the low proportion of net sown area in these states.

Forest area in the country is far lower than the desired 33 per cent of geographical area, as it was outlined in the National Forest Policy (1952). It was considered essential for maintenance of the ecological balance. The livelihood of millions of people who live on



Q17. Continuous use of land over a long period of time without taking appropriate measures to conserve and manage is known as?

Q18. What is the cause of land degradation in states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha ?

Q19. What is the cause of land degradation in states like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra?

Q20. What is the cause of land degradation in states like Punjab, Haryana, Western UP?

Q21. Various forces of nature such as change in temperature, actions of running water, wind and glaciers, activities of decomposers etc. contribute to the formation of \_\_\_\_\_.

the fringes of these forests depends upon it. A part of the land is termed as waste land and land put to other non-agricultural uses. Waste land includes rocky, arid and desert areas and land put to other non-agricultural uses includes settlements, roads, railways, industry etc. Continuous use of land over a long period of time without taking appropriate measures to conserve and manage it, has resulted in land degradation. This, in turn, has serious repercussions on society and the environment.

#### LAND DEGRADATION AND CONSERVATION MEASURES

We have shared our land with the past generations and will have to do so with the future generations too. Ninety-five per cent of our basic needs for food, shelter and clothing are obtained from land. Human activities have not only brought about degradation of land but have also aggravated the pace of natural forces to cause damage to land.

Some human activities such as deforestation, over grazing, mining and quarrying too have contributed significantly in land degradation.

Mining sites are abandoned after excavation work is complete leaving deep scars and traces of over-burdening. In states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha deforestation due to mining have caused severe land degradation. In states like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra overgrazing is one of the main reasons for land degradation. In the states of Punjab, Haryana, western Uttar Pradesh, over irrigation is responsible for land degradation due to water logging leading to increase in salinity and alkalinity in the soil. The mineral processing like grinding of limestone for cement industry and calcite and soapstone for ceramic industry generate huge quantity of dust in the atmosphere. It retards the process of infiltration of water into the soil after it settles down on the land. In recent years, industrial effluents as waste have become a major source of land and water pollution in many parts of the country.

There are many ways to solve the problems of land degradation. Afforestation and proper management of grazing can help to some extent. Planting of shelter belts of plants, control on over grazing, stabilisation of sand dunes by growing thorny bushes are some of the methods to check land degradation in arid areas. Proper management of waste lands, control of mining activities, proper discharge and disposal of industrial effluents and wastes after treatment can reduce land and water degradation in industrial and suburban areas.

#### SOIL AS A RESOURCE

Soil is the most important renewable natural resource. It is the medium of plant growth and supports different types of living organisms on the earth. The soil is a living system. It takes millions of years to form soil upto a few cm in depth. Relief, parent rock or bed rock, climate, vegetation and other forms of life and time are important factors in the formation of soil. Various forces of nature such as change in temperature, actions of running water, wind and glaciers, activities of decomposers etc. contribute to the formation of soil. Chemical and organic changes which take place in the

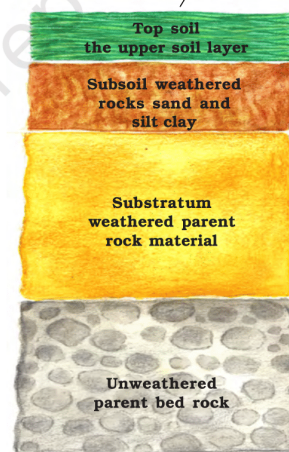


Fig. 1.5: Soil Profile

RESOURCES AND DEVELOPMENT





Q17. Continuous use of land over a long period of time without taking appropriate measures to conserve and manage is known as?

Q18. What is the cause of land degradation in states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha ?

Q19. What is the cause of land degradation in states like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra?

Q20. What is the cause of land degradation in states like Punjab, Haryana, Western UP?

Q21. Various forces of nature such as change in temperature, actions of running water, wind and glaciers, activities of decomposers etc. contribute to the formation of \_\_\_\_\_.

the fringes of these forests depends upon it. A part of the land is termed as waste land and land put to other non-agricultural uses. Waste land includes rocky, arid and desert areas and land put to other non-agricultural uses includes settlements, roads, railways, industry etc. Continuous use of land over a long period of time without taking appropriate measures to conserve and manage it, has resulted in land degradation. This, in turn, has serious repercussions on society and the environment.

#### LAND DEGRADATION AND CONSERVATION MEASURES

We have shared our land with the past generations and will have to do so with the future generations too. Ninety-five per cent of our basic needs for food, shelter and clothing are obtained from land. Human activities have not only brought about degradation of land but have also aggravated the pace of natural forces to cause damage to land.

Some human activities such as deforestation, over grazing, mining and quarrying too have contributed significantly in land degradation.

Mining sites are abandoned after excavation work is complete leaving deep scars and traces of over-burdening. In states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha deforestation due to mining have caused severe land degradation. In states like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra overgrazing is one of the main reasons for land degradation. In the states of Punjab, Haryana, western Uttar Pradesh, over irrigation is responsible for land degradation due to water logging leading to increase in salinity and alkalinity in the soil. The mineral processing like grinding of limestone for cement industry and calcite and soapstone for ceramic industry generate huge quantity of dust in the atmosphere. It retards the process of infiltration of water into the soil after it settles down on the land. In recent years, industrial effluents as waste have become a major source of land and water pollution in many parts of the country.

There are many ways to solve the problems of land degradation. Afforestation and proper management of grazing can help to some extent. Planting of shelter belts of plants, control on over grazing, stabilisation of sand dunes by growing thorny bushes are some of the methods to check land degradation in arid areas. Proper management of waste lands, control of mining activities, proper discharge and disposal of industrial effluents and wastes after treatment can reduce land and water degradation in industrial and suburban areas.

#### SOIL AS A RESOURCE

Soil is the most important renewable natural resource. It is the medium of plant growth and supports different types of living organisms on the earth. The soil is a living system. It takes millions of years to form soil upto a few cm in depth. Relief, parent rock or bed rock, climate, vegetation and other forms of life and time are important factors in the formation of soil. Various forces of nature such as change in temperature, actions of running water, wind and glaciers, activities of decomposers etc. contribute to the formation of soil. Chemical and organic changes which take place in the

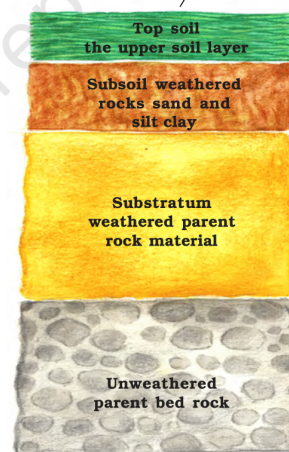


Fig. 1.5: Soil Profile

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Q22. What is the name of old alluvial soil?

Q23. What is the name of new alluvial soil?

Q24. What ingredients make alluvial soil ideal for the growth of sugarcane, paddy, wheat and other cereal and pulse crops?

Q25. Black soil is also called?

Q26. Black soil is ideal for growing what?

Q27. Which soil is well-known for their capacity to hold moisture?

soil are equally important. Soil also consists of organic (humus) and inorganic materials (Fig. 1.5).

On the basis of the factors responsible for soil formation, colour, thickness, texture, age, chemical and physical properties, the soils of India are classified in different types.

#### Classification of Soils

India has varied relief features, landforms, climatic realms and vegetation types. These have contributed in the development of various types of soils.

#### Alluvial Soils

This is the most widely spread and important soil. In fact, the entire northern plains are made of alluvial soil. These have been deposited by three important Himalayan river systems- the Indus, the Ganga and the Brahmaputra. These soils also extend in Rajasthan and Gujarat through a narrow corridor. Alluvial soil is also found in the eastern coastal plains particularly in the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri rivers.



Fig. 1.6: Alluvial Soil

The alluvial soil consists of various proportions of sand, silt and clay. As we move inland towards the river valleys, soil particles appear some what bigger in size. In the upper reaches of the river valley i.e. near the place of the break of slope, the soils are coarse. Such soils are more common in piedmont plains such as **Duars**, **Chos** and **Terai**.

Apart from the size of their grains or components, soils are also described on the basis of their age. According to their age alluvial soils can be classified as old alluvial (**Bangar**) and new alluvial (**Khadar**). The **bangar** soil has higher concentration of

**kanker** nodules than the **Khadar**. It has more fine particles and is more fertile than the **bangar**.

Alluvial soils as a whole are very fertile. Mostly these soils contain adequate proportion of potash, phosphoric acid and lime which are ideal for the growth of sugarcane, paddy, wheat and other cereal and pulse crops. Due to its high fertility, regions of alluvial soils are intensively cultivated and densely populated. Soils in the drier areas are more alkaline and can be productive after proper treatment and irrigation.

#### Black Soil

These soils are black in colour and are also known as **regur** soils. Black soil is ideal for growing cotton and is also known as **black cotton soil**. It is believed that climatic condition along with the parent rock material are the important factors for the formation of black soil. This type of soil is typical of the Deccan trap (**Basalt**) region spread over northwest Deccan plateau and is made up of lava flows. They cover the plateaus of Maharashtra, Saurashtra, Malwa, Madhya Pradesh and Chhattisgarh and extend in the south east direction along the Godavari and the Krishna valleys.



Fig. 1.7: Black Soil

The black soils are made up of extremely fine i.e. clayey material. They are well-known for their capacity to hold moisture. In addition, they are rich in soil nutrients, such as calcium carbonate, magnesium, potash and



Q28. For growing what, red laterite soil is more suitable in Tamil nadu, AP and Kerala ?

lime. These soils are generally poor in phosphoric contents. They develop deep cracks during hot weather, which helps in the proper aeration of the soil. These soils are sticky when wet and difficult to work on unless tilled immediately after the first shower or during the pre-monsoon period.

#### Red and Yellow Soils

Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern parts of the Deccan plateau. Yellow and red soils are also found in parts of Odisha, Chhattisgarh, southern parts of the middle Ganga plain and along the piedmont zone of the Western Ghats. These soils develop a reddish colour due to diffusion of iron in crystalline and metamorphic rocks. It looks yellow when it occurs in a hydrated form.

#### Laterite Soil

Laterite has been derived from the Latin word 'later' which means brick. The laterite soil develops under tropical and subtropical climate with alternate wet and dry season. This soil is the result of intense leaching due to heavy rain. Lateritic soils are mostly deep to very deep, acidic (pH<6.0), generally deficient in plant nutrients and occur mostly in southern states, Western Ghats region of Maharashtra, Odisha, some parts of West Bengal and North-east regions. Where these soils support deciduous and evergreen forests, it is humus rich, but under sparse



Fig. 1.8: Laterite Soil



vegetation and in semi-arid environment, it is generally humus poor. They are prone to erosion and degradation due to their position on the landscape. After adopting appropriate soil conservation techniques particularly in the hilly areas of Karnataka, Kerala and Tamil Nadu, this soil is very useful for growing tea and coffee. Red laterite soils in Tamil Nadu, Andhra Pradesh and Kerala are more suitable for crops like cashew nut.

#### Arid Soils

Arid soils range from red to brown in colour. They are generally sandy in texture and saline in nature. In some areas the salt content is very high and common salt is obtained by evaporating the water. Due to the dry climate, high temperature, evaporation is faster and the soil lacks humus and moisture. The lower horizons of the soil are occupied by *Kankar* because of the increasing calcium content downwards. The *Kankar* layer formations in the bottom horizons restrict the infiltration of water. After proper irrigation these soils become cultivable as has been in the case of western Rajasthan.



Fig. 1.9: Arid Soil

#### Forest Soils

These soils are found in the hilly and mountainous areas where sufficient rain forests are available. The soils texture varies according to the mountain environment where they are formed. They are loamy and silty in valley sides and coarse grained in the upper slopes. In the snow covered areas

Q29. The running water cuts through the clayey soils and makes deep channels known as \_\_\_\_\_?

Q30. The Land which becomes unfit for cultivation is known as \_\_\_\_\_?

Q31. Which type of cultivation restricts erosion?

of Himalayas, these soils experience denudation and are acidic with low humus content. The soils found in the lower parts of the valleys particularly on the river terraces and alluvial fans are fertile.

#### Soil Erosion and Soil Conservation

The denudation of the soil cover and subsequent washing down is described as soil erosion. The processes of soil formation and erosion, go on simultaneously and generally there is a balance between the two. Sometimes, this balance is disturbed due to human activities like deforestation, over-grazing, construction and mining etc., while natural forces like wind, glacier and water lead to soil erosion. The running water cuts through the clayey soils and makes deep channels as gullies. The land becomes unfit for cultivation and is known as bad land. In the Chambal basin such lands are called ravines. Sometimes water flows as a sheet over large areas down a slope. In such cases the top



Fig. 1.11: Gully Erosion

soil is washed away. This is known as sheet erosion. Wind blows loose soil off flat or sloping land known as wind erosion. Soil erosion is also caused due to defective methods of farming. Ploughing in a wrong way i.e. up and down the slope form channels for the quick flow of water leading to soil erosion.

Ploughing along the contour lines can decelerate the flow of water down the slopes. This is called contour ploughing. Steps can be cut out on the slopes making terraces. Terrace cultivation restricts erosion. Western and central Himalayas have well developed terrace farming. Large fields can be divided into strips. Strips of grass are left to grow between the crops. This breaks up the force of the wind. This method is known as strip cropping. Planting lines of trees to create shelter also works in a similar way. Rows of such trees are called shelter belts. These shelter belts have contributed significantly to the stabilisation of sand dunes and in stabilising the desert in western India.



Fig. 1.10: Soil Erosion

#### State of India's Environment

- The village of Sukhomajri and the district of Jhabua have shown that it is possible to reverse land degradation. Tree density in Sukhomajri increased from 13 per hectare in 1976 to 1,272 per hectare in 1992;
- Regeneration of the environment leads to economic well-being, as a result of greater resource availability, improved agriculture and animal care, and consequently, increased incomes. Average annual household income in Sukhomajri ranged from Rs 10,000-15,000 between 1979 and 1984;

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**ANSWERS(Resources and Dev):**

1. Nature, technology and institution
2. A- Biotic and abiotic;  
B- renewable and non-renewable  
C- individual, community, national and international  
D- potential, developed stocks and reserves
3. 22.2km
4. 200
5. Rajasthan and Gujarat
6. Global warming, ozone layer depletion, environmental pollution and land degradation
7. 1992,brazil
8. Jharkhand, chhattisgarh and MP
9. Arunachal pradesh
10. Ladakh
11. D
12. Small is beautiful
13. 43%
14. 30%
15. 27%
16. 93%
17. Land degradation
18. Mining
19. Overgrazing
20. Overirrigation
21. Soil
22. Bangar
23. Khadar
24. Potash, phosphoric acid and lime
25. Regur soils
26. Cotton
27. Black soil
28. Cashew nut
29. Gullies
30. Bad land
31. Terrace cultivation



# QUESTIONS FROM CBSE SQP

7.	<p>The piece of land left uncultivated for the past 1 to 5 agricultural years is called _____.</p> <p>Choose the correct option:</p> <p>A. Barren land B. Forest land C. Grazing land D. Fallow land</p>
8.	<p>Which one of the following conferences was convened to discuss environmental protection and socio-economic development at the global level in 1992?</p> <p>A. Kyoto Protocol B. Montreal Protocol C. Rio de Janeiro Earth Summit D. World Summit on Sustainable Development</p>
9.	<p>India has land under a variety of relief features. Which of the following features ensure perennial flow of some rivers, provide facilities for tourism and ecological aspects?</p> <p>A. Plains B. Plateaus C. Islands D. Mountains</p>
10.	<p>Which one of the following human activities has contributed significantly in land degradation?</p> <p>A. Deforestation B. Crop rotation C. Shelter belts D. Ploughing</p>
29.	<p>Identify the soil with the help of clues given below –</p> <ul style="list-style-type: none"> <li>• develops in areas with high temperature and heavy rainfall</li> <li>• is low in humus content</li> <li>• found in the hilly areas of Karnataka, Kerala and Tamil Nadu</li> </ul> <p>A. Forest soil B. Yellow soil C. Black soil D. Laterite soil</p>
30.	<p>Which of the following categories of resources can we put Tidal energy in?</p> <p>A. Renewable resources B. Non-renewable resources C. Actual resources D. Potential resources</p>

Ans-D,C,D,A,D,A

# PREVIOUS YEAR QUESTIONS

SPECIALLY CONVERTED IN MCQ FORMAT

**1. Being a tropical country, India has enormous possibilities of tapping solar energy. Choose the correct way to popularize its maximum use. (2021)**

- a) Making people aware about renewable energy resources
- b) use of rooftop solar panels
- c) solar street lighting
- d) All of the above

**2. A concerted effort has to be made for sustainable development. Choose appropriate steps for conserving our mineral resources for the future. (2021)**

- a) Recycling of metals
- b) Not disposing wastes
- c) Using polythene bags.
- d) None of the above

**3. What is Sustainable development? (2020)**

- a) Creating deep channels.
- b) Present generation fulfils its needs while considering the needs of the future generation as well.
- c) To satisfy the needs of the present generation only.
- d) Development of resources

**4. Choose the resources on the basis of origin. (2018)**

- a) Biotic and Abiotic resources.
- b) Potential and developed resources
- c) Renewable and Non-renewable resources.
- d) National and community

**5. What do you understand by a 'Resource'? Give examples(2015)**

Ans. Everything available in our environment which can be used to satisfy our needs, is called a resource. It should be technologically accessible, economically feasible and culturally acceptable. Only then, it can be termed as a 'Resource'. Examples are: minerals, forests, fossil fuels etc

**6. Give any two examples of non-renewable resources. (2015)**

- a) Sunlight
- b) Houses
- c) Flora
- d) Fossil fuels

**7. Which factor is mainly responsible for maximum land degradation in India? (2015)**

- a) Resource planning
- b) Wind erosion
- c) Overgrazing
- d) Over irrigation

**8. In what broad category do the soils of Maharashtra fall?(2014)**

- a) Alluvial soil
- b) Black soil
- c) Arid soil
- d) Forest soil

**9. Which of the following is not a way to protect land from degradation in various states of India? (2021)**

- a) Afforestation
- b) Planting shelterbelts
- c) Control of mining activities
- d) Deforestation

**10. Write the classification of resources on four different bases. (2015,3M)**

Ans. Resources can be classified in the following four ways:

(a) On the basis of Origin:

- Biotic
- Abiotic

(b) On the basis of exhaustibility:

- Renewable
- Non-renewable

(c) On the basis of ownership:

- Individual (Personal)
- Community
- National
- International

(d) On the basis of status and development:

- Potential
- Developed
- Reserve
- Stock

**11. Which of the following is not a stage of 'resource planning? (2015)**

a) surveying of the resources.

b) Evolving a planning

c) Defective methods of farming

d) Matching the resource development plans with overall national development plans



**12. Where is Black/regur soil distributed in India? (2015)**

- a) Basalt region
- b) mountainous areas
- c) Deccan Trap region
- d) Northern fertile plains

**13. “Planning is the widely accepted strategy for judicious use of resources in a country like India”. Justify this statement with two relevant points and an example. (2013,3M)**

Ans. 1. There are regions which are rich in certain types of resources but are deficient in some other resources. For example: Arunachal has abundance of water but lacks infrastructural development.

2. There are some regions which can be considered self-sufficient in terms of availability of resources. For example: The states of Jharkhand, Chhattisgarh and Madhya Pradesh are rich in minerals and coal deposits.

3. There are some regions which have acute shortage of some vital resources. For example: The state of Rajasthan is well endowed with solar and wind energy but lacks in water resources.

**14. Explain the concept of resource conservation as voiced by Gandhiji. (2014,3M)**

Ans. Gandhiji voiced his concern about resource conservation in these Words: “There is enough for everybody’s need and not for anybody’s greed.” He placed the greedy and selfish individuals as the root cause for resource depletion at the global level. He was against ‘mass production’ and wanted to replace it with ‘production by the masses.’

1. Indiscriminate use of resources by human beings has led to the depletion of resources for satisfying the greed of few individuals.

2. Irrational consumption and over-utilization of resources leads to socio-economic and environmental problems.

**15. Choose the type of soil erosion. (2013)**

- a) Gully
- b) Contour
- c) Terrace
- d) Shelter

**16. 'The challenge of sustainable development requires control over industrial pollution.' Substantiate the statement with examples. (2020,5M)**

Ans. i. On one hand Industries lead to extensive industrial growth and expansion, on the other hand these are also the cause of environmental degradation which prompt the different types of air, water pollution.

ii. There is an increasing requirement to use a further sustainable model.

iii. Industries must produce eco-friendly products and dump wastes responsibly.

iv. Use of the latest technology can help industries to control pollution and lead towards a sustainable mode of operation.

v. Industries use- Reuse-Recycle-Refuse approach.

**17. What are the characteristics of Regur soils? (2015)**

a) Present in Reddish colour

b) Sandy and saline in nature

c) Acidic in nature

d) Made up of clayey material

**18. What is the example of Individual resources? (2014)**

a) Pasture lands

b) Picnic spots

c) Forests

d) Exclusive economic zones

**19. What is not the measure to solve problems of land degradation (2014)**

a) Afforestation

b) Deforestation

c) Control on mining activities

d) Planting shelterbelts

**20. Write the main characteristics of arid soils.**

**[5M, 2014]**

1. Arid soils range from red to brown in colour.
2. They have a sandy texture.
3. They are saline in nature. In areas where salt content is high, common salt is obtained by evaporation.
4. Arid soil lacks humus and is moisture deficient.
5. The lower horizons of the soil have kankars because of high calcium content which restricts infiltration of water.
6. Proper irrigation helps make these soils cultivable, e.g., Western Rajasthan

**ANSWERS:**

1. D
2. A
3. B
4. A
- 5.
6. D
7. C
8. B
9. D
- 10.
11. C
12. C
- 13.
- 14.
15. A
- 16.
17. D
18. A
19. B
- 20.